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ABSTRACT

This essay demonstrates the origins, rationale and utility for social cartography as a process capable of portraying the interrelations of truth and value choices in the field of educational policy studies. The article focuses on the particular domain of environmental education-related discourse while presenting both a primary conceptual mapping project and a critique of the work performed. The authors explain the interrelations of the discourse and disclose interactions between themselves and with their readers to demonstrate how the intertextual field opens the heuristic circle to include readers as active participants in the process. They essay argues that social cartography is a methodology which attends to the spatial dispersion of ideas so as to explicitly portray their value and power relations. Conclusions touch on the potential and limitations of social cartography as a useful methodology for attending to postmodern considerations within the realm of educational policy studies, including its practical application to environmental education, the metanaratives of science and technology. (Contains 34 References.) (Author/CK)

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MAPPING/REMAPPING DISCOURSE IN EDUCATIONAL POLICY STUDIES

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APS Conceptual Mapping Project

Research Report No. 4

June, 1996

ABSTRACT

In this essay we demonstrate the origins, rationale and utility for social cartography as a process capable of portraying the interrelations of truth and value choices in the field of educational policy studies. We focus on the particular domain of environmental education-related discourse, and present both a primary conceptual mapping project and a reflexive critique of our work, providing a second mapping, or remapping, of the terrain. We explain the interrelations of the discourse, and also disclose our own interactions and our interactions with readers to demonstrate further how the intertextual field opens the heuristic circle to include readers as active participants in the process. Facing both the promises and the problems of social cartography, we argue that this is a methodology which attends to the spatial dispersion of ideas in such a way that their value and power relations are made explicit. We expect that the utility of this project and this process will be realized through the appropriation of mapping techniques and approaches by our readers. Finally, we offer reflections and conclusions about the limitations, as well as the potential, of social cartography as a useful methodology for attending to postmodern considerations within the realm of educational policy studies. While we hope that educators will utilize this process to see from a diversity of perspectives the truth and value positions that often implicitly inform their pedagogical choices, we acknowledge difficulties inherent in the process, and seek feedback from practitioners in the field.

> A clash of doctrines is not a disaster; it is an opportunity.
>
> Alfred North Whitehead; *Science and the Modern World*, 1925

> Education is a kind of continuing dialogue, and a dialogue assumes ... different points of view.
>
> Robert M. Hutchins, *Time*, 8 Dec. 1952

What does the postmodern turn - specifically, the decentring of knowledge and of the subject - mean in terms of making human sense for ourselves and for/with our readers as comparative educators constantly facing and explicating difference? The emergence of social cartography as a methodology for comparative educators and educational theorists speaks to this dilemma, heralding the dawn of an age of mutual respect and consideration,(1) and of giving voice to difference on a leveled playing field of perceptions.(2) In Paulston (1996), both difference and unification find their place of valuation within this postmodern turn:

> Because social cartography allows the comparison of multiple realities and contested codes in a representational construct, it also has potential to serve as a metaphorical device for the provisional representation and iconographic unification of warring cultures and disputatious communities. Every social map is the product of its makers and open to continuous revision and interrogation. In the process of mapping, the subject is seen to be constituted at the shifting space where multiple and competing discourses intersect. This view advances neither the self-sufficient Cartesian subject of Western humanism nor the radically de-centered Baudrillardian subject seen by extreme poststructuralism. Instead, the mapper is articulated around a core of self that as Flax (1990) argues, is nonetheless differentiated locally and historically. Mapping, in this view, makes possible both a way of understanding how sliding identities are created, and how the multiple

> connections between spatiality and subjectivity are grounded in the contested terrain between intellectual communities.(3)

Paulston sees that comparative education shares with other fields "a common interdisciplinary pursuit of cultural theory and situated knowledge generation processes, as well as the more traditional cross-cultural comparison of national practices".(4) It is these 'situated knowledge generation processes' which we take up in this paper, exploring the process as conceived by the second author for purposes of developing a postmodern-sensitive methodology useful to comparative educators, and utilized by the first author to make sense of a policy dialogue currently in formation around themes and issues of environmental education (EE) -related discourse.

Acknowledging our differences, we speak here consensually at times, and as first or second author at other times. Therefore, this research report represents a mapped journey which details both the mapping process and rationale, on the one hand, and the situated ways of knowing which are evolving through the EE-related dialogue itself, on the other.

Our intention in this report is to detail: 1) the origins of the work and rationale for social mapping and its possibilities in general; 2) an exploration of EE-related discourse as an ongoing dialogue, and the situated ways of knowing which are evolving within that dialogue; 3) a narrative of the problems and promises of the social cartographic process through disclosure of its inner workings within this project; 4) an exposition of further indications for mapping/remapping EE-related dialogue; and 5) reflections and conclusions about the usefulness of such a mapping project, as we created our own dialogue and informed each others' meaning constructions around this discourse.

Origins of the Work

> ..I believe that the anxiety of our era has to do fundamentally with space, ...a great deal more than with time. (Foucault, *Of Other Spaces*, 1986, p. 23)

What is Foucault's sense of spatial dispersion about, and how does it serve as an origin of this work? In his 1972 work, *The Archaeology of Knowledge*, Foucault, following work in the history and philosophy of science by Bachelard and Canguilhem,(5) among others, described in these words the then emerging trend in the history of ideas or knowledge, among other disciplines, as a time of transitional thought:

> ...attention has been turned... away from vast unities like 'periods' or 'centuries' to the phenomena of rupture, of discontinuity. Beneath the great continuities of thought, beneath the solid, homogeneous manifestations of a single mind or of a collective mentality, beneath the stubborn development of a science striving to exist and to reach completion at the very outset, beneath the persistence of a particular genre, form, discipline, or theoretical activity, one is now trying to detect the incidence of interruptions. (6)
>
> And the great problem presented by such historical analyses is... one of division, of limits; it is no longer one of lasting foundations, but one of transformations that serve as new foundations, the rebuilding of foundations. What one is seeing, then, is the emergence of a whole field of questions... by which this new form of history is trying to develop its own theory... (7)

Arguing that "history is the work expended on material documentation," and that "history is now trying to define within the documentary material itself unities, totalities, series, relations," Foucault goes on to state that "history is one way in which a society recognizes and develops a mass of documentation with which it is inextricably linked." If history, then,"in its traditional form, undertook to 'memorize' the *monuments* of the past, transform them into *documents*, and lend speech to those traces which... are often not verbal, or which say in silence something other than what they actually say," Foucault sees that "in our time, history is that which transforms *documents* into

monuments," and "deploys a mass of elements that have to be grouped, made relevant, placed in relation to one another to form totalities," thus aspiring to "the condition of archaeology" (8). This 'mutation,' according to Foucault, has had a stunning effect:

> it has broken up the long series formed by the progress of consciousness, or the teleology of reason, or the evolution of human thought; it has questioned the themes of convergence and culmination; it has doubted the possibility of creating totalities. It has led to the individualization of different series, which are juxtaposed to one another, follow one another, overlap and intersect, without one being able to reduce them to a linear schema. ...in place of the continuous chronology of reason, ...there have appeared scales that are sometimes very brief, distinct from one another, irreducible to a single law, scales that bear a type of history peculiar to each one, and which cannot be reduced to the general model of a consciousness that acquires, progresses, and remembers. (9)

What Foucault details here, within the parameters of a history of knowledge, is the disruption, or deconstruction, of a history based on a linear notion of progress. For Foucault (and others sensitive to this transformation), this has led to a new set of problems for the general (as opposed to the traditional) historian of knowledge:

> The problem that now presents itself... is to determine what form of relation may be legitimately described between these different series; what vertical system they are capable of forming; what interplay of correlation and dominance exists between them; what may be the effect of shifts, different temporalities, and various rehandlings; in what distinct totalities certain elements may figure simultaneously; in short, not only what series, but also what 'series of series'... A total description draws all phenomena around a single centre - a principle, a meaning, a spirit, a world-view, an overall shape; a general history, on the contrary, would deploy the space of a dispersion. (10)

The task of explicating (or excavating) the space of a dispersion is complexified by the specialization, or fragmentation, of knowledge communities and their subject matter. Further, those following this sensibility, whose varying approaches

are generally gathered under the umbrella term postmodern deconstruction, work within a milieu that is neither well understood nor apprehensible through prior research forms or agendas. Fulfillment of the promise of apprehending dispersion requires access to new modes or tools for excavation. Further, acceptance of this approach has not come without difficulty. Foucault's caution pertains as much today as it did in 1972:

> Even now... it has been neither registered nor reflected upon... It is as if it was particularly difficult, in the history in which men [sic] retrace their own ideas and their own knowledge, to formulate a general theory of discontinuity, of series, of limits, unities, specific orders, and differentiated autonomies and dependences. As if... we felt a particular repugnance to conceiving of difference, to describing separations and dispersions, to dissociating the reassuring form of the identical. ...As if we were afraid to conceive of the *Other* in the time of our own thought. (11)

What does this seeming repugnance, this fear of otherness, produce in response to postmodern sensibility? How does it play into the construction of new venues and research processes for those laboring within this sensibility to see and understand from within a spatial dispersor the interrelations between ourselves and 'others'? Foucault is clear on the response:

> The cry goes up that one is murdering history whenever... one is seen to be using in too obvious a way the categories of discontinuity and difference, the notions of threshold, rupture and transformation, the description of series and limits. ...But one must not be deceived: what is being bewailed with such vehemence is not the disappearance of history, but the eclipse of that form of history that was secretly, but entirely related to the synthetic activity of the subject; what is being bewailed is the 'development' (*devenir*) that was to provide the sovereignty of the consciousness with a safer, less exposed shelter than myths, kinship systems, languages, sexuality, or desire; what is being bewailed is the possibility of reanimating through the project, the work of meaning, or the movement of totalization, the interplay of material determinations, rules of practice, unconscious systems, rigorous but

> unreflected relations, correlations that elude all lived experience; what is being bewailed, is that ideological use of history by which one tries to restore to man everything that has unceasingly eluded him over a hundred years. (12)

Postmodern sensibility, from Foucault's view, presents a critical threat both to the illusion of stability and to the illusion of a foundational basis for change. As such, it is subject to villainization as though the sensibility itself, by destroying prior illusion, could destroy either progress or hope of progress. Those who labor within this sensibility encounter themselves as 'other,' and benefit from that encounter, particularly as the encounter itself brings to life new venues for research, and new research processes -- the sites and tools of excavation. A kind of watchfulness is necessitated by the process, however - one which demands that we be overseers of ourselves in the moment where we gaze into the looking-glass of otherness.

Social cartography represents an effort to excavate the elusive through a recognizable, if not definable, methodology which is based on an anti-foundational perspective. The task to which we now turn is to explain this methodology, which the second author has conceptualized as a means of bringing into formal discourse the interplay of many voices as a visual dialogue. (13) For the first author, this methodology additionally constitutes a contemplative process, both elusive and alluring, but nevertheless highly useful for conceptualizing the abstract variances within the intertextual field of educational policy studies. By way of illustration, we will focus on one part of this vast terrain, that is to say, EE-related discourse.

Social Cartography as Postmodern Methodology

> We are creating and using up ideas and images at a faster and faster pace. Knowledge, like people, places, things and organizational forms, is becoming disposable.
>
> Alvin Toffler, *Future Schock*, 1970

Before focusing on EE-related discourse, however, we attend to social cartography as a means of addressing difference within disputatious communities in a way that allows for healthy dialogue.(14) In this section, we explain the rationale for admitting postmodern considerations into the space of comparative education as one such disputatious community. We offer this rationale in preparation for looking at the practical use of social cartography as a method for exploring the conflicted terrain of EE-related discourse.

Calling for postmodern theories to be applied within the discourse of comparative education, Val Rust (1991) reasoned that the deconstruction of universal metanarratives (stories which aspire to tell the 'one great truth' from which meaning can be derived or within which meaning should be constructed) - such as positivism or Marxism - were necessitated by their own natures, characterized as "totalizing, standardizing, and predominating." (15) Seeing postmodern theory as a space from within which comparative educators might address "the history of modernist society and culture as it was ingrained and justified by a world view obsessed with focusing on time and history," (16)

> Rust entreats educators to relocate into this space, to extract from modernity the metanarratives to be dismantled, metanarratives containing the multiple small narratives previously hidden in the invisible space of modernist society. The small narratives that Rust suggests we draw our attention to can be the focus of comparative mapping efforts in a reflective and self critical postmodern social science. (17)

While Rust turns our attention to these 'small narratives' (mininarratives), focusing on spatial aspects of comparative education -- the question of whose stories get told, Mouat (1996) has put the matter a little differently, drawing our consideration to the manner of representation:

> The PostModern era began with a dawning awareness that "reality" is composed of disconnected fragments. As early PostModerns sought reconnection they discovered that the concrete representation of interrelationships between and among fragments often eludes expression. As the struggle to discover and express interrelationships intensified it became apparent that the *abstract* representation of interrelationships is often possible when their *concrete* representation is not. Therefore, social cartography as mapping abstraction arises initially as a vehicle through which to express in highly condensed, abstract form, the interrelationships between and among elements of systems which are not amenable to concrete description. (18)

In Mouat we find a concern that moves us away from the locus of the story towards the manner of representation, and asserts that the abstract is more clearly the object of a social cartographic approach. What is the purpose, then, behind the mapping of all of this fragmented abstraction? The concerns of urban cartographer Edward Soja play into Paulston & Liebman's rationale: space may be "claimed by cultural clusters" so that "situating the whereness of cultures and the events driving their realities are a better framing choice for the questions we ask and the answers we receive as we pursue meaning in the postmodern world." (19) The mapping of abstraction leads to the inclusion of cultural clusters or sites of knowledge not ordinarily seen or given voice within the research domains of modernity fostered by, or emerging in response to, former approaches based on metanarratives:

> Postmodern space is the research domain containing the objects to be mapped -- the multiple social ideologies and convictions arising from modernism. The postmodern researcher in education, who may also become a postmodern cartographer, prizes both the space within the social milieu and the possibilities for a more inclusive mapping of that space, motivating the creation of multiple and inclusive maps. (20)

The research domain is thus opened to become more inclusive and subjects itself to

close reading as a check on its own tendency to establish itself as a new metanarrative. Thus the map as a heuristic device not only represents abstractly what may defy concrete representation, opening a research domain that may become increasingly inclusive, but draws the reader into the intertextual field of discourse as well:

> This heuristic map discovers intellectual communities and relationships, illustrates domains, suggests a field of interactive ideas, and opens space to all propositions and ways of seeing in the social milieu. What appears as open space within the global representation is space that can be claimed by intellectual communities whose discourse is not yet represented on the map. (21)

> Readers may question whether the depiction is accurate, whether the allocation of space is appropriate, and whether the genealogy and relationships suggested... have developed or are developing in the directions the mapper indicates. ...the map is available for dialogue; if a reader disagrees, she or he need only redefine the space. (22)

The intertextual field of a particular domain now expands in such a way that the heuristic circle is opened inwardly, for introspection, and outwardly, for greater dialogue, more diversity of perspectives, and an ongoing exegetic process, or close reading, that may pave the way for further inclusion. No way of seeing is silenced, but neither is any privileged, and all are problematized! Instead, the site of knowledge for a particular domain is excavated to reveal multiple layers and meanings observed from diverse points of view, or ways of seeing, as illustrated in Figures 1 and 2 below.

Finally, mapping is portrayed "as a kind of cognitive art, or 'play of figuration' to help orient educators to knowledge communities and their cultural codes, and to reinscribe earlier modernist vocabularies into post-modern ways of seeing and representing educational change knowledge." (23) The result is a "distinct mode of visual representation" where space is used to represent a spatial dispersion that offers, "when

combined with discourse analysis, a system of possibility for new knowledge" (24):

> Comparative education is now portrayed as a mapping of the intertextual weavings of diverse discourse communities rather than the objectified images presented to the world in earlier foundational texts. The strength of social theory in the field today is in fact firmly grounded in this very multiplicity of its perspectives and tools known through intertextual composition. (25)

This cognitive art form is one which both subjects itself and models for others a distinct manner of being-in-the-world, one which is sensitive to the epoch of space and to the continuous construction of knowledge from within many sites and through many perspectives:

> It would seem that the time is propitious for comparative educators to consider how a cartography of relations might help us move beyond our present Cartesian anxiety and conservative utopianism into the next millenium. I believe that social cartography with its deconstructive view of all modes of representation and with its ludic openness to new ideas and ways of seeing can help us make this intellectual journey. (26)

What is the usefulness of this conceptual mapping effort -- this intellectual journey -- to practitioners laboring in the intertextual field of EE-related discourse? We acknowledge that the aletheistic utility of mapping, while serving to reveal 'intertextual interweavings within diverse discourse communities,' doesn't change anything, but also offer that the more participatory it is, the more useful it will be for opening up possibilities for change. We expect the visual portrayal of patterned interrelations within the discourse to be useful to educators in making choices which are informed by the experience of seeing from a diversity of perspectives.

EE-Related Discourse and Social Cartography

> In the industrial states environmental concerns are increasingly being felt as threats to employment and economic growth. Even some environmentalists

> have announced that "the ecological wave" is spent. I would rather say that such waves are growing, but that the continued policy of economic growth generates increasing toughness of resistance against those waves. When fighting this resistance one of the many assets would be a clear grasp of the philosophical issues involved. Change of... policy requires change of value priorities.
>
> Naess, 1981, p. 1

In this section we examine what a 'cartography of relations' means in practical terms for EE-related discourse, and how such an 'intellectual journey' might prove useful to comparative educators. Rust's exhortation that postmodern considerations such as the deconstruction of metanarratives and problems of the Other be given serious attention in the field of comparative education (27) provides at the least a vague outline of where we might begin such a journey. We begin by considering the nature of environmental issues and concerns in relation to these considerations, then move on to the practice of social cartography as a means of visually presenting/re-presenting an EE-related policy dialogue.

Teachers who address environmental issues are addressing both external images of reality, affecting students' conceptions of the natural world and their place in relation to it, as individuals and as citizens of local, state, and global spheres; and internal images of reality, affecting students' conceptions of their relations within that natural world, both as human beings and as species beings. Issues of alterity and identity related to sense of place lie at the heart of environmental discourse. Comparative educators who address these issues are addressing problems of the Other, explicitly or implicitly. We seek to make that facet of the dialogue explicit by making it visible.

Further, any curricular approach to EE emanates from some way of seeing, privileging it over some other. Any learning that takes place commits to some way of seeing which may obliterate others from consideration. Within this scenario, truth and value choices are politically potent and culturally charged, and the role played by supporting metanarratives, or the selection of mininarratives -- i.e., the question of whose

stories get told -- resounds with power. We argue that an inclusive, visual circle of dialogue which incorporates all voices may tend to deconstruct, delimit, or redistribute this power over construction of meaning in a purposeful way.

As for the practicality of such an undertaking, we argue that teachers and students wrestling with such conceptions can only benefit from exposure to multiple perspectives and from a conceptual organization of the various insights and concerns that they offer for consideration. This need for a way of organizing multiple perspectives is mandated by the explosion of EE-related discourse as an ever-expanding intertextual field. A diversity of views explores new ways of seeing relationships between humans and the rest of the natural world, humans and science-and-technology communities, humans as social beings in enclaves variously competing with each other for resources or attempting to work together to protect an increasingly ravaged planet. What has resulted is a panoply of ideas, perspectives and correlated applications from which educators must select, often without reference to any overall view of the effects or possibilities of selection. (28)

We argue that the methodology of social mapping as it makes visible sometimes bewildering relationships between old and new ways of seeing within EE-related discourse may serve to clarify truth and value choices within this discourse and to orient educators in terms of the diversity of available perspectives within its vague and rapidly-expanding boundaries. We propose and undertake a mapping and remapping of EE-related discourse that can begin to make the policy dialogue visible and serve as an illustrative avenue for a close reading of any one way of seeing the dialogue itself.

This cartography of ideas - the mapping of voices of vision within the discourse - serves, as well, as a ludic approach to truth and value conflicts, modeling a 'playful' way of cognitively resisting any metanarrative (including its own) which would seek to silence others.(29) The nature of environmentalism as a social movement

involving cognitive praxis -- a constant exchange of lifestyle and identity within public spheres of struggle (30) -- calls for a ludic approach to this struggle if resistance to metanarratives which would silence some ways of seeing while privileging others is to be realized.

In the next section, we present a conceptual mapping of sites of knowledge, or situated ways of knowing, embodied in EE-related discourse. The mapping represents a way of seeing the philosophical issues involved -- i.e., the truth and value choices that emerge within the policy dialogue -- and a way of approaching the discourse so that the inclusion of mininarratives (outsider voices, e.g.,) (31) and creative interaction with metanarratives (the 'reality dictates' of rational science, e.g.) are given full ludic play. We invite the reader to join us in this intellectual journey, to read closely along with us the power and value relations of meaning within the policy dialogue (including our own) and to determine what is useful and worthy of consideration.

Sites of Knowledge in EE-Related Discourse

How do we include, within the parameters of a map, outsider stories as texts which have an equal claim to credibility as claims made by the stories, or texts, of rational progress through scientific inquiry that have fueled industrialization, development and civilization as we know it in the Western world? How do we approach a basic articulation of a multiplicity of priorities of valuation, action and ontological perspectives pertinent to EE-related discourse? We argue that worlds are discursively constructed, arranged and redefined through the use of language, or texts, and that they can therefore be discursively reconstructed, rearranged and redefined continually through the constructive and deconstructive power of texts. Ludic play represents resistance to control by metanarratives of truth and power, and constitutes, in part, a personally creative world orientation which we use here to reveal space at the table of conversation

for all voices and options, including our own.

For our purposes here, we seek to map the policy dialogue keeping four main considerations in mind: (1) the issue of whose stories get told; (2) heeding abstractions which situate the whereness of cultures; (3) maximizing the inclusive potential of the mapping project; and (4) developing, refining and reconstructing on a continuing basis the aesthetic promise of mapping as a cognitive art form. (32)

We present the intertextual field of EE-related discourse as an open field -- an orb of issues and concerns which overlap and intersect, the meeting of many stories at boundaries not yet fully explored -- making space for a re/presentation (or series of re/presentations) of current, emerging and age-old dialogues that excludes none. Traditional sites of knowledge (texts deriving from the narratives of science and humanism, e.g.) meet emerging voices of vision (such as outsider voices), which may problematize prior parameters and their constraining influence, sharing space in a dispersion which makes room for new ways of seeing, new knowledge communities and new directions of inquiry, while not ignoring tradition.

The discourse reveals two aspects of concern: *risk* and *relationship*. (33) Stories told within the aspect of risk speak of the effects of human interactions with nature and address issues of how best to mitigate these interactions in order to ameliorate the risk of further environmental degradation. Stories told within the aspect of relationship speak of the effects of meaning on these interactions, addressing concerns over how meaning may be constructed or reconstructed to address further human interactions with nature.

Two further dimensions are apparent in the discourse and appear to intersect both aspects. The first consists of a particular vision of reality and locates its basis in either a materialist sense of the universe or a sense of the universe reflecting some notion of immanence. This dimension approaches the perceptual divide between the aspect of

risk and the aspect of relationship. The second consists of a particular valuation of the human being, either from an anthropocentric way of seeing human/nature relations or an ecocentric way of seeing these relations, a debate which has sharpened and become more clearly articulated during recent decades. The intersection of these dimensions forms four interconnected, interrelated domains of inquiry: ecology, deep ecology, scientific humanism, and what the first author terms theology (a theology of human/nature relations). Ecology focuses on the whole community of beings, living and non-living, and their interactions as equals, while deep ecology favors higher gestalts that look at ecological issues from a deeper questioning of meanings of human/non-human existence. Scientific humanism focuses on the community of humans and their interactions with each other and the rest of the natural world in relation to environment, while theology looks at the deeper questioning of the meanings of human existence and of the character of the natural world as a whole.

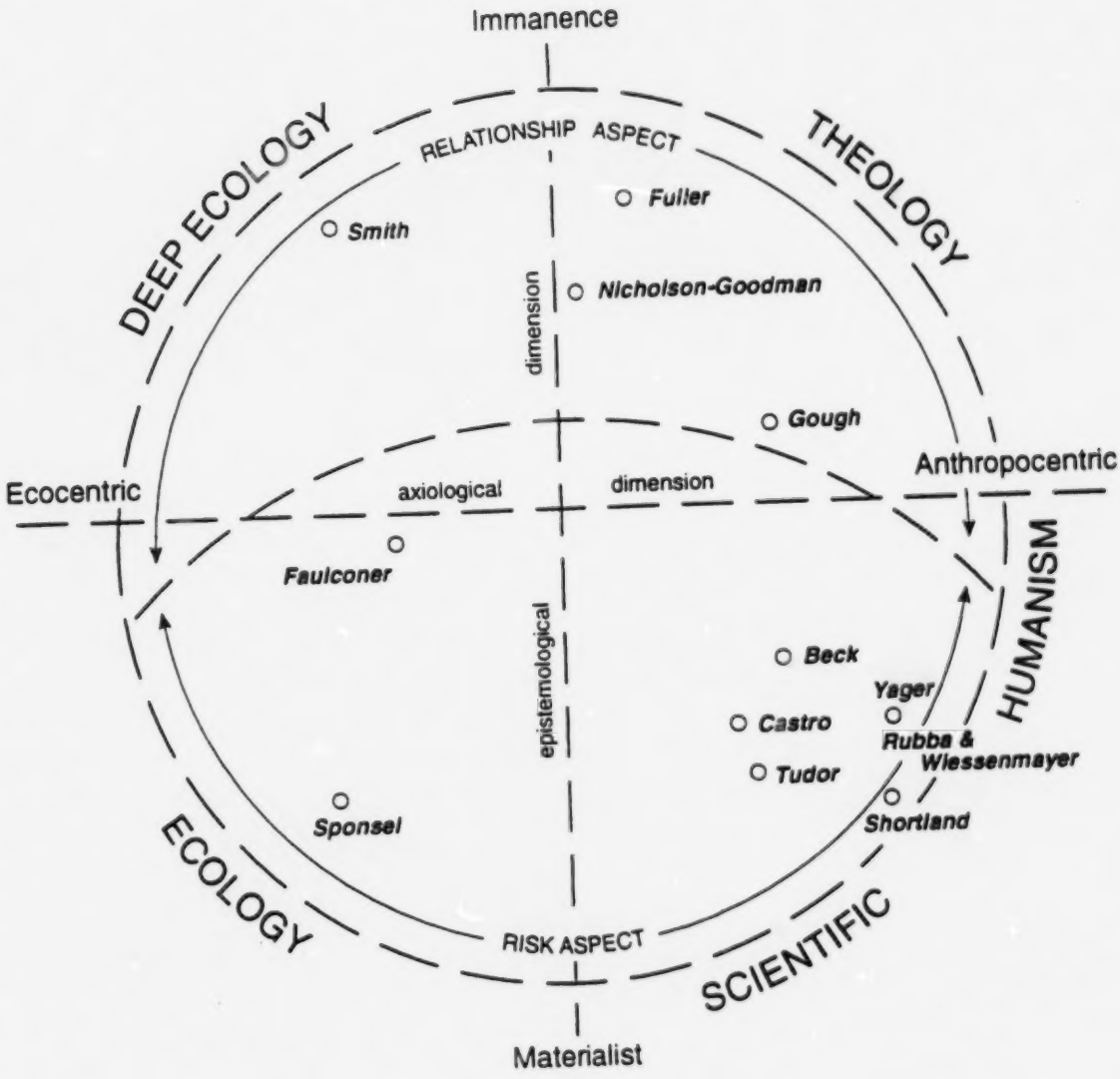
We present here a summation of texts (see Table 1) utilized in a conceptual mapping of EE-related discourse. (34) We name each text according to a perspective which it appears to articulate, then locate it based on the choices which it advocates. The mapping of these texts, then, articulates their internal relations as well as the contours and juxtapositions of the intertexual field itself. It is of some importance to note that texts may be located within the same domains of inquiry because they reflect ways of knowing or seeing that attend to common truth and value choices, but that they may not necessarily *agree on desired outcomes.*

This manner of excavation led to the construction of Figure 1 (see Figure 1). The figure itself was negotiated through a dialogue between the first and second authors, a matter which will be dealt with in detailing our interactions in the next section. For our purposes here, we simply list the perspectives which led to the construction of the figure in an effort to illustrate the correlations within the figure which inform the juxtapositions

Table 1. Summation of EE-Related Texts for Figure 1

Text	Perspective	Characteristics/Advocacy
Faulconer 1993	historical	EE as epistemological evolution towards focus on ecology, deep ecology/nature-based valuation
Shortland 1988	science literacy	ignores EE; science as icon of well-being for culture and polity/science as evolving knowledge, scientist as imparter of truth and knowledge
Rubba & Wiesenmayer 1988	Science-Technology-Society (STS)	wants to provide knowledge, skills and attitudes for responsible environmental behavior/expertise of scientists as humanists
Yager 1990, 1993	STS	student-centered experience of science as applied knowledge for real-world problems/expertise of scientists as humanists
Beck 1992	radicalized science	questions science-owned knowledge; risks and hazards product of scientism/critique of science
Tudor 1991	sustainable development	new world order mandates global resource management, education for world federation/EE for sustainable development
Sponsel 1987	cultural ecology	equilibrium vs. disequilibrium social order as problem/ population, consumption to be nature-based
Castro 1993	differential development	risks created, debt owed by consumer societies/ right of Third-World nations to develop
Gough 1993	fictive narrative	science, EE as poor storytelling practices/need for new language to sing new nature relations into being
Fuller 1988	aesthetic	erosion of immanence led to mindless sense of nature and humans/return to aesthetic response
Smith 1993	resacralized nature	reconstruction of human sense of meaning in cosmos/ nature-based sense of place for reconstruction

Note: For further elaboration of texts, see Nicholson-Goodman (1996), *A Ludic Approach to Mapping Environmental Education Discourse.* In Paulston, R. (ed.), *Social Cartography: Mapping Ways of Seeing Education and Social Change.* New York: Garland.



Nicholson-Goodman (1996), *A Ludic Approach to Mapping Environmental Education Discourse.* In Paulston, R. (ed.), *Social Cartography: Mapping Ways of Seeing Education and Social Change.* New York: Garland, p. 313.

of the domains of inquiry. Texts illustrate a wide range of difference and, because the mapping is a conceptual work, and not a phenomenographic work (which would have required a far greater breadth and depth of research) (35), simply indicate interrelations of the larger discourse itself.

Ten perspectives emerge to represent the fuller spectrum of EE-related discourse. Each text operates as a voice in the dialogue, and the relative truth and value advocacies derived from the texts form the interrelations of the dialogue, and therefore of the map. A further question emerges here: How do we avoid the dilemma, having constructed an initial conceptual mapping of the dialogue, of establishing a new metanarrative of EE-related discourse? In order to address this problematic, it is necessary first to look at the interaction between first and second authors in the map's 'construction,' and then to consider a possible remapping based on an additional consideration of perspectives.

Interrelations of the Project

In this section we provide a narrative of the interaction between the first and second authors, and of the interaction between readers from the field of educational policy studies and the mapping project itself. By narrating these interactions, we offer readers of this report an opportunity to gain insight into value and power relations of the text, and to perform their own close reading from a position informed by an understanding of those interactions.

As with any text, this study has a subtext, or an inner life, not readily apprehended by the reader. The mapping of meaning performed here is the result of dialogue and collaboration between the two authors. The selection and reading of texts of EE-related discourse may have initiated with the first author, but this has since become a collaborative sharing of information and outlooks in the field. The eliciting of

their essential truth and value choices was the province and concern of the first author, while the conceptual map produced from this activity (the more elaborate exposition of which is the subject of further work) (36) was produced by a collaborative effort in the form of a negotiated rendering.

We discussed, in this effort, the dynamic elements of the interrelations of the mapped texts: the second author problematized and challenged the aspects themselves, *risk* and *relationship*. On these aspects of the intertextual field the first author was quite clear, as the texts articulate these aspects profoundly. The domains of inquiry delineated here (simply referred to as 'fields' elsewhere) (37) -- ecology, deep ecology, scientific humanism, and theology -- were also challenged, with essentially the same result. The second author problematized the inclusion of the notion of immanence as the polar opposite (or 'other') of materialism. Again, the first author was resolved, based on the discourse itself, that this was an appropriate characterization of the dispersion of truth choices, although it must be allowed that texts within this aspect may reflect a number of options in this regard, ranging from acknowledgment of the possibility of immanence to an outright embracing of immanence as *the* truth choice. This seems reasonable, since within the risk aspect, texts may reflect the same range of options, from a simple refusal to consider any truth choice other than a materialist world to an outright embrace of the material world as the only reality. The notion of the immanent as defined by *The New Webster International Dictionary* (1972, p. 478) is: 'remaining within; indwelling; inherent; *philos.*, taking place entirely within the mind; subjective; *theol.*, of God, pervading the universe. The apparent dichotomization of reality into materialism and immanence parallels, then, truth choices which range from objective to subjective to something beyond either (the within/beyond). The former framing was chosen because the language of the texts was more clearly approached through this framing.

A visual depiction was more easily apprehended by the second author, who

renegotiated the map the first author had drawn from the discourse, which was complex and 'muddy' compared to the 'new' map. For the second author, it was clear that the intersection of the two dimensions formed the core of the map, and that the surround needed to be a simple geometric figure. Simpler to read and clearer in its outline of the dimensions involved, we agreed upon this mapping, which was then elaborated just a bit more by the first author. First, the arc shape which delineates the two aspects, for instance, was chosen to reinforce the use of the astronomical sense of dichotomization, as an eclipse of one aspect of the orb while the other is in view (thus avoiding the logical, and problematic, notion of a distinct separation or opposition) -- problematizing not the orb of EE-related concerns itself, but the human perceptual problems that eclipse our vision. Second, the surround was broken from a closed circle to a punctuated one, allowing space for further opening of space either in later work or by others.

A series of presentations of this mapping effort led to some interesting further considerations resulting from input by readers. In the first presentation of the work it was noted that the map was very 'Paulstonesque,' meaning that it was based on the idea of quadrants, prevalent in the second author's earlier maps. This led the first author to present a brief narrative about what a four-directional circle represented to her, and helped illumine more of the personal meaning that connected her with this particular rendering. (38) At successive presentations, the map was seen variously as a scattergram, a device for measuring texts (not only within the dimensions, but also along its 'axes') and, finally, a *model* for truth and value choices. None of these views corresponded with our perceptions of the map as a way of opening up a dialogical space, but were valuable nevertheless for comprehending the inclusion of the reader in the hermeneutic circle.

The second author's continual assistance with further explorations of more current work on EE-related discourse and of mapping-related discourse as well, has

served additionally to increasingly open out the space of dialogue between us and to keep our work current, reflexive and controversial in many other ways not readily apparent here. The modeling of this manner of research has inspired a sort of theoretical courage that was new to the first author.

The remapping of the discourse, the elaboration of which follows in the next section, is based on the notion that our original conceptual mapping project represents just one way of seeing the discourse, and that, in order to deprivilege our own sense of meaning, the project needs to continue to open out to new ways of seeing that discourse, and therefore new mapping projects which reach for wider proportions and more inclusive research agendas.

Indications for Remapping EE-Related Discourse

No one way of seeing within EE-related discourse can claim privilege over others, not even our own. How might we avoid the pitfall of constructing a map that becomes its own metanarrative? We do so by suggesting an alternative mapping -- a remapping -- and by extending an invitation to our readers to construct their own maps and perform a close reading of this report. To deprivilege the mapping illustrated in Figure 1,(39) we re-examine EE-related discourse as it is embodied in a particular disputation within the policy dialogue. Our goal is to reach for wider proportions of the discourse than those considered in the first conceptual map, constructing a second map to embody a more inclusive research agenda.

This remapping of EE-related discourse might, we argue here, address the local/global locus of vision as a dynamic that is often forefronted in the discourse. This dynamic attends both to consciousness of the planet and to the 'real' sites within which we are accustomed to living, changing the sense of meaning of both. Just as our lived

realities have sets of relations, so do our sites of knowledge, or situated ways of knowing. The purpose of remapping EE-related discourse relative to the local/global dynamic has both a social theoretical goal -- namely, to open out this particular aspect of the policy dialogue to reveal truth and value choices often presented only implicitly -- and a pragmatic goal -- to clarify those truth and value choices so as to orient practitioners to the effects and possibilities of selection.

We now pay particular attention to two dimensions of this dialogue. The first is a transitional phase in human self-knowledge, represented by a continuum with our human sense of ourselves as species beings at one pole, and our human sense of ourselves as social beings at the other. This continuum expresses an axiology of community. The second dimension is a transitional phase in the societal ethic surrounding social change, represented by a continuum with an ethic of progress at one pole, and an ethic of uncertainty at the other. This continuum expresses an epistemology of social development (see Figure 2). What results is a coherent and visible representation of value and power relations within the intertextual field of EE-related discourse *informed specifically by the policy dialogue of local/global relations within that dialogue.* Mapping these relations provides us with a strong sense of the 'lay of the land' and of coherent terrains within that discourse. This map further opens out to a characterization of *human/social responses to nature* implicit in the fields formed by the intersections of the two dimensions: control, submission, awe and reconstruction.

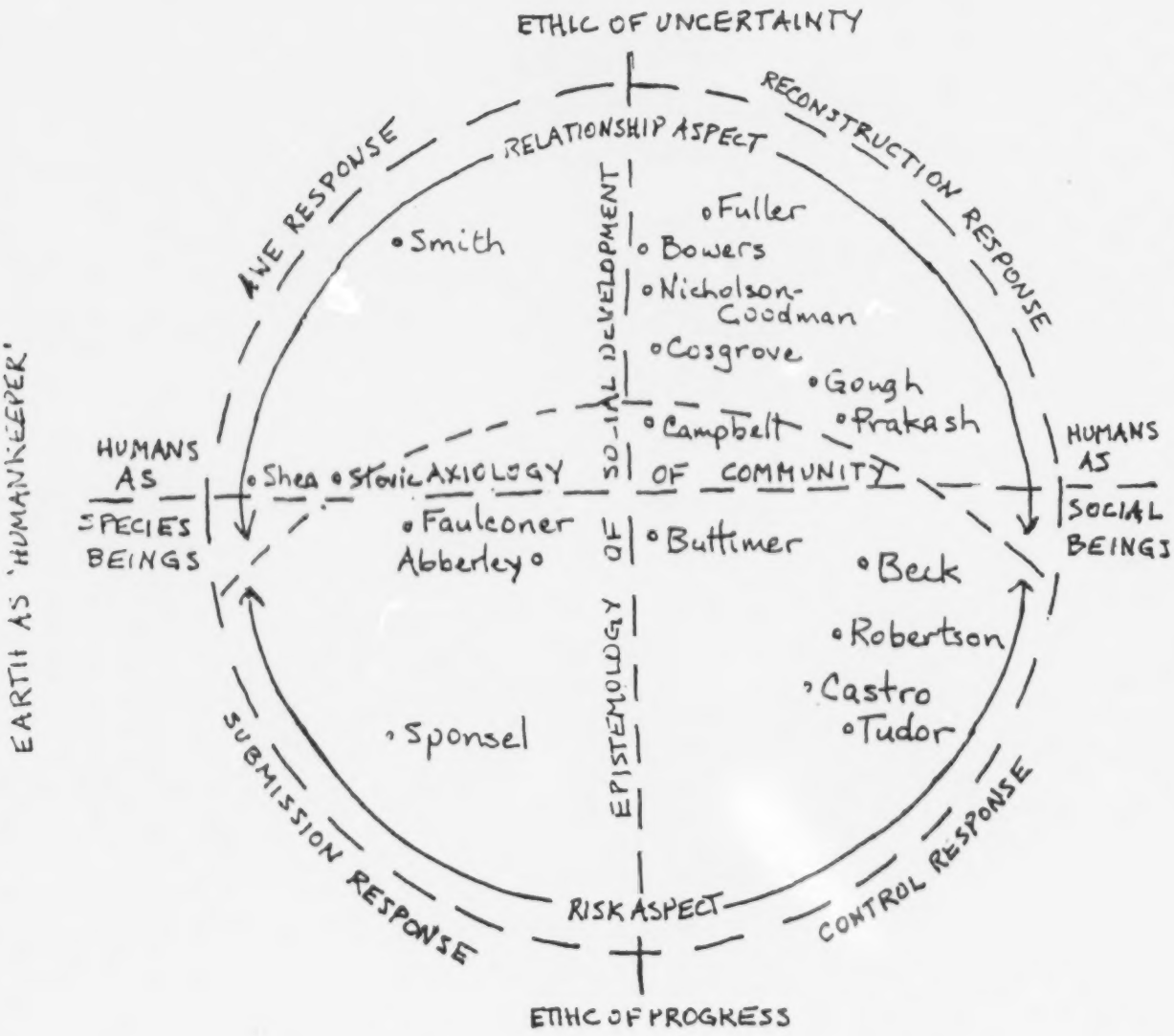
The control response approaches environmental problems and concerns from the point of view of a human prioritization and domination of material realities within human and non-human realms of being; the submission response approaches them from the point of view of a nature-dictated prioritization and domination of material realities within human and non-human realms of being. These are notably *reactive responses* belonging to the risk aspect. The awe response approaches questions of meaning of

human/nature relations from the point of view of a nature-provided interactional complex of realms of meaning; the reconstruction response approaches these same questions of meaning from the point of view of a human-provided interactional complex of realms of meaning. These are notably *creative responses* belonging to the relationship aspect.

Viewing EE-related discourse -- the policy dialogue -- from this organizational perspective may inform further discussion and elaboration of value and power relations of EE praxis. We allow that the map has no metanarrative value, but requires the interplay of many mininarratives to enhance the dialogue. A continual process of remapping the dialogue is called for, first, by the need to deprivilege the map itself as metanarrative, and second, to allow space for the emergence of 'new' voices within the dialogue.

Again, we present here a summation of texts (see Table 2) utilized in the remapping of EE-related discourse based on the local/global dynamic. (40) We name each text according to a perspective which it appears to articulate, then locate it based on the choices which it advocates. Once again, it is important to note that texts may be located within the same domains of response based on their respective truth and value choices, without necessarily agreeing on desired outcomes of policy. The map is meant to inform our understanding of the internal relations of this discourse, and to provide a coherent sense of the contours and juxtapositions within the intertextual field itself.

Seventeen perspectives emerge in the remapping project to re/present the fuller spectrum of EE-related discourse as reflected in the local/global dynamic. Each text operates as a voice in the policy dialogue, and the respective truth and value advocacies derived from the texts form the interrelations of the dialogue, and therefore of the map. It is expected that further remapping may occur as other dynamics command attention. It is hoped that readers will construct their own maps, and join the dialogue. In the next section, we draw conclusions about the mapping project, reflect on the



Source: Nicholson-Goodman, J. (1996), *Globalization, the New World Order & Local Imperatives: Mapping Our Way Towards a Sustainable Dialogue on Environment.* Paper presented at the Comparative & International Education Society Annual Meeting, Williamsburg, VA.

Table 2. Summation of EE-Related Texts for Figure 2

Text	Perspective	Characteristics/Advocacies
Campbell 1988	mythic breakdown	cultural collisions, transition in human awareness led to rupture in world-, nature-related meaning/need for universal social image, true planetary mythology
Beck 1992	radicalized science	restructuration of society based on distribution of risk derives from, accentuates global trends/new social structure requires radical, democratized science
Shea 1992	convivial planetary	human rights, ecology as frameworks for social change; new world culture as synthesis/nature-based restructuration of society and meaning
Robertson 1992	world-structuration	global interdependence, global consciousness as long-standing trends, accelerated by environmentalism/need for global social theory to counteract danger of trends
Castro 1993	differential development	inherent contradictions of sustainable development in hands of developed world as plunderers/need to dismantle hierarchical stranglehold on resources, free Third World to develop
Sponsel 1987	cultural ecology	planetary transformation into disequilibrium social ordering as problem/need for nature-based social reordering of society for equilibrium
Tudor 1991	sustainable development	common global ground needed to move EE forward/ need to balance economic imperatives with environmental protection at global level
Smith 1993	resacralized nature	myth of progress as problem/need to replace with myth characterizing deep relations with nature, to reenchant, resacralize with nature-based mythology
Faulconer 1993	historical	current models of EE work against creation of truly sustainable society/need for nature-based valuation
Gough 1993	fictive narrative	EE, science education as stories that frame realities of global conditions inappropriately/need for stories which foreground kinship with nature
Fuller 1988	aesthetic	erosion of concept of immanence led to despair and despondency in human spirit/need for return to *theoria*, aesthetic response to nature
Cosgrove 1988	techno-poetic collaboration	nature relations as constant reworking over time of meaning/reunion of *techne* and *poesis* needed in postmodern reconstruction of global meaning

Table 2. Summation of EE-Related Texts for Figure 2 (continued)

Text	Perspective	Characteristics/Advocacies
Slovic 1992	self-awareness through place-awareness	effects of place on sense of self, belonging; changes in attitude and behavior depend on awakening to awe/ need for submission to 'ancient influences'
Abberley 1993	reinhabitation	homogenization of cultures and regions into global as problem/nature-based evolution of culture and technology
Buttimer 1993	appropriate scales	collision of social equity, economic growth and ecological sustainability/local constructions of meaning must play role in policy formation
Bowers 1995	sustainable education	outlines cultural responses to environmental problems/ need to problematize technology and progress as iconic metaphors
Prakash 1995	postmodern ecology	anti-local, -woman, -culture, -nature character of modernist ecological expertise/relocation of choice- and decision-making in local sites, peoples

Note: for further elaboration of texts, see Nicholson-Goodman (1996), *Globalization, the New World Order & Local Imperatives: Mapping Our Way Towards a Sustainable Dialogue on Environment.* Paper presented at Comparative and International Education Society Annual Meeting, March 6-10; Williamsburg, VA.

process and the problems, and address both the limitations of the study and expectations for further research.

Reflections and Conclusions

What does the postmodern turn mean in terms of making sense for ourselves and for/ with our readers as comparative educators? We have demonstrated in this study that social cartography as a postmodern process/practice is a useful means for excavating sites of knowledge, or situated ways of knowing. We believe that we have also demonstrated its capacity to engage the metanarratives of modernity alongside emerging mininarratives, revealing the truth and power relations of both within the specific discourse of EE-related texts, to make those relations explicit through the mapping and remapping of the discourse. Our goal has been to construct/reconstruct that policy dialogue, making its implications explicit by reframing a multiplicity of ways of seeing the embodied knowledge in the intertextual field in the form of a visual dialogue.

The interplay of readers' input, both in our own dialogue and in our reading (and translation) of our mapping efforts, has signalled that there are some crucial aspects of the project which require further consideration. Mapping, as pointed out by Abberley (1993) (41), is a sociopolitical activity which has often been taken out of the hands of local people and reserved for those who have authority and power to use maps to retain or enhance that power. We have no desire to utilize social cartography in such a way, and are mindful that our mapping efforts are just one way of seeing the issues and concerns involved. The invitation to remap is an earnest one, but requires active readers who are willing to involve themselves in such efforts. Otherwise the potential of the map to be construed as a model emerges, threatening the integrity of the project.

The visual imagery involved is equally problematic. We have spoken of the difficulty of mapping ideas on a flat, two-dimensional surface, and the first author has

been challenged by the second to move on from a form of imagery which at least hints at quadrants and order to something new which can incorporate motion, change and multiplicity. We need to ask whether the rapid acceleration of change in current times means that the printed page may soon become obsolete. The second author raised an important and related question: namely, are we approaching a time when only three-dimensional forms of imagery (film, holograms, etc.) will satisfy our need for ordering diverse perceptions of reality? Many of our readers called for the insertion of a third dimension in this mapping project, but the first author has as yet been unable to formulate something both appropriate and readable. Some encouraged the use of computer graphics to create the third dimension, while still others rejected this notion as a compromise within the discourse field of EE itself, since the computer is a symbol for some of a mechanistic world and of the reduction of nature to technologically-produced images.

We have argued the need for the project in terms of its practicality for those engaged in environmental education, who deal continually with problems of the Other and with the metanarratives of science, technology and progress. We have shown the need for conceptual organizers which can inform this practice, offering two maps which portray ways of conceptualizing spatial interrelations in the discourse and of revealing truth and value orientations involved in the policy dialogue. While the practicality of the project may be apparent to us, only its actual usage by those engaged in such practice can provide the feedback we seek.

We have accomplished what we set out to do. We have: explained the origins of the work and rationale for social mapping and its possibilities in general; explored an area of educational policy discourse as an ongoing dialogue, and its sites of knowledge; narrated the problems and promises of the process through disclosure of its inner workings within this mapping project; presented a remapping of EE-related discourse to

expose further potential; and reflected critically upon the limitations and usefulness of the project.

END NOTES

1. R. G. Paulston, "Mapping Discourse in Comparative Education Texts." *Compare*, 23(2), (1993), p. 101.

2. R. Usher and R. Edwards, *Postmodernism and Education*. (London: Routledge, 1994).

3. R. G. Paulston, ed., *Social Cartography: Mapping Ways of Seeing Social and Educational Change*. (New York: Garland, 1996), pp. xiii-xiv.

4. *Ibid.*

5. Foucault's association with Bachelard and Canguilhem dates to his student days. Bachelard taught at the Sorbonne while Foucault was a student there, and Canguilhem was Foucault's thesis advisor in his *doctorat d'etat* in the history of science. Bachelard's work is largely focused on ruptures in the history of science and changes in conceptions of reason proceeding from these ruptures. He identified (or constructed) a model of scientific change based on the division of epistemological phenomena into three categories: epistemological breaks, existing between scientific cognition and everyday experience, as well as within realms of scientific cognition; epistemological obstacles, concepts or methods preventing such breaks, usually deriving from past ways of seeing; and epistemological acts, leaps of genius that introduce the unexpected into the realm of inquiry. One conclusion which he drew was that no single, unified conception of rationality may be found, but rather that regions of rationality prevailed in the history of scientific thought. Whereas Bachelard's work was largely philosophical, Canguilhem was primarily a historian of science who conceptualized a model of history of science as a law court, where decisions rendered on concepts and their validity are based on normative criteria which prohibit a value-free orientation. For further reading, see G. Bachelard, *L'activite rationaliste de la physique contemporaine*. (Paris, 1951); and G. Canguilhem, *Etudes d'histoire et de la philosophie des sciences*. (Paris, 1970). See also G. Gutting, "Continental Philosophy and the History of Science." In *Companion to the History of Modern Science*. (London: Routledge, 1990); and M. Philp, "Michel Foucault." In *The Return of Grand Theory in the Human Sciences*, ed. Q. Skinner. (Cambridge: Cambridge University Press, 1985).

6. M. Foucault, *The Archaeology of Knowledge*, trans. A. Sheridan. (New York: Pantheon, 1972), p. 4.

7. *Ibid.*, p. 5.

8. *Ibid.*, p. 7.

9. *Ibid.*, p. 8.

10. *Ibid.*, p. 10.

11. *Ibid.*, p. 12.

12. *Ibid.*, p. 14.

13. R. G. Paulston and M. Liebman, *The Promise of a Critical Postmodern Cartography.* (Research Report No. 2). (Pittsburgh: University of Pittsburgh, Administrative & Policy Studies Conceptual Mapping Project, 1993); R. G. Paulston, "Mapping Knowledge Perspectives in Studies of Educational Change." In *Transforming Schools*, ed. P. W. Cookson and B. Schneider. (New York: Garland, 1995).

14. See G. P. Kelly, "Debates and Trends in Comparative Education." In *Emergent Issues in Education:Comparative Perspectives*, ed. R. F. Arnove, P. G. Altbach and G. P. Kelly. (Albany: State University of New York Press, 1992); R. G. Paulston, *Conflicting Theories of Social and Educational Change.* (Pittsburgh: University of Pittsburgh Center for International Studies, 1976); R. G. Paulston, "Commentary: From Paradigm Wars to Disputatious Community," *Comparative Education Review*, 34 (August 1990): 395-400.

15. V. D. Rust, "Postmodernism and Its Comparative Education Implications," *Comparative Education Review*, 35 (November 1991): 610-627; Rust in Paulston and Liebman, p. 6..

16. Paulston and Liebman, pp. 6-7.

17. *Ibid.*, p. 7.

18. T. W. Mouat, "The Timely Emergence of Social Cartography." In *Social Cartography: Mapping Ways of Seeing Social and Educational Change.* (New York: Garland, 1996).

19. E. Soja, in Paulston and Liebman, p. 12.

20. Paulston and Liebman, p. 12.

21. *Ibid.*, p. 15.

22. *Ibid.*, pp. 15-16.

23. Paulston, 1993, p. 101.

24. *Ibid.*, p. 112.

25. *Ibid.*, p. 112-113.

26. Paulston, 1996, p. xv.

27. Rust.

28. J. Nicholson-Goodman, "A Ludic Approach to Mapping Environmental Education Discourse." In *Social Cartography: Mapping Ways of Seeing Social and Educational Change.* (New York: Garland, 1996).

29. Paulston, 1995.

30. See, for example. R. Eyerman and A. Jamison, *Social Movements: A Cognitive Approach.* (University Park, Pennsylvania: The Pennsylvania State University Press, 1991); A. Melucci, *Nomads of the Present.* (Philadelphia: Temple University Press, 1989); A. Touraine, *Return of the Actor: Social Theory in Postindustrial Society.* (Minneapolis: University of Minnesota Press, 1988).

31. See B. Taylor, "Earth First! and Global Narratives of Popular Ecological Resistance." In *Ecological Resistance Movements: the Global Emergence of Radical and Popular Environmentalism,* ed. B. Taylor. (Albany: State University of New York Press, 1995); pp. 11-13.

32. Rust exhorts us to include art and aesthetics as aspects of our work in comparative education, while questioning "the role this domain should play in educational inquiry and discourse" (p. 624). In Paulston and Liebman, mapping is an aesthetic expression of the meaning of knowledge related to the mapper's understanding of some social system, and the reader of the mapping project is offered, in lieu of truth, a work of cognitive art -- "a portrait... representing the possibilities portrayed by being open to the world's mutliple cultural truths" (pp. 13-14).

33. Nicholson-Goodman, p. 308.

34. *Ibid.*

35. Paulston and Liebman, p. 14.

36. Nicholson-Goodman.

37. *Ibid.*

38. I envision what I describe in "A Ludic Approach to Mapping Environmental Education Discourse" as "walking the circle of human experience" (p. 310) in terms of a four-directional, circular approach to ways of seeing. While this envisioning of human experience has roots in my own life and understandings, it is at least partially informed by the concept of the Medicine Wheel as detailed in H. Storm, *Seven Arrows.* (New York: Ballantine, 1972). Here the Medicine Wheel is depicted as "a mirror in which everything is reflected." "Any idea, person or object can be a Medicine Wheel" for us, and wholeness depends upon migrating from one way of seeing (or direction) to the next in a continual process of realization and rediscovery (p. 4-7). As the cognitive and spiritual transitions through which I travel (and through which my understanding grows) cohere, I am faced with the dilemma of determining how best to escape the dizzying effects of relativism, and I make peace with constant change and flux by adopting an ethic of shifting identity which allows for change while resisting any claim to evolution toward a supposed higher consciousness. In this way, no prior understanding is silenced, and no later one is privileged. The four-directional schema utilized in the conceptual mapping project speaks to this conceptual understanding of shifting vision and shifting voice, and therefore appeals to me as a place of integrity from which to locate how I "see." The negotiated figure serves for me as a mirror or a Medicine Wheel of my own value and power relations, as well as interrelations within the intertextual field of EE-related discourse.

39. Nicholson-Goodman.

40. J. Nicholson-Goodman, *Globalization, the New World Order and Local Imperatives: Mapping Our Way Towards a Sustainable Dialogue on Environment.* A paper presented at the Comparative and International Education Society Annual Meeting. (Williamsburg, March 6-10, 1996).

41. D. Aberley, *Boundaries of Home.* (Gabriola Island, BC: New Society Publishers, 1993. Aberley articulates the view that maps "are models of the world -- icons... for what our senses "see" through the filters of environment, culture, and experience" (p. 1), and argues that mapping is a way of reempowering ourselves in relation to the places and situated experiences of our lives.

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